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For immediate release

Sumitomo Forestry Co., Ltd.
Achilles Corporation
Green Chemistry Japan Co.,Ltd

Development of a soil biodegradable tree shelter

~ Reduces CO2 emissions and forestation labor burdens ~

Sumitomo Forestry Co., Ltd. (SFC), Achilles Corporation (Achilles), and Green Chemistry Japan Co.,Ltd (GCJ) are pleased to announce the joint development of a soil biodegradable tree shelter.

The soil biodegradable tree shelter is made from a biodegradable resin* that contains plant-derived materials as an alternative to polypropylene. After use, the shelter decomposes naturally thanks to microorganisms in the forest soil, markedly reducing environmental impact. As the tree shelters do not need to be transported for removal, they help to significantly decrease CO2 emissions from transportation and incineration. They also help to minimize the burden on workers and bring down collection and disposal costs.

**Formulated from petroleum-derived ingredients with superior decomposition properties*

Polypropylene tree shelter　　Soil biodegradable tree shelter

■ Background

Many trees in Japan were planted after World War 2 and are now in the process of being harvested and reforested. Damage caused by Japanese deer, wild rabbits, and other wildlife eating newly planted trees is a major problem in the forestry industry. The most common method to prevent animal damage has been to build protective fences or nets around the entire reforestation area. However, due to a shortage of workers to maintain these fences, protective materials (such as tree shelters) that enclose individual trees are becoming more widely used in recent years.

Most protective nets and tree shelters are made of polypropylene. Because of the high cost of collecting and disposing these materials, they are often left abandoned in the forest.

To resolve this problem, Sumitomo Forestry, Achilles, and GCJ developed a material that is as strong as conventional materials while being biodegradable in soil. The three companies developed a prototype soil biodegradable tree shelter using this material and are conducting verification tests in forests.

■ Development and verification testing

In response to the Ministry of the Environment's calls for proposals for a "FY2020 Verification Project for the Establishment of a Recycling System for Plastics and Other Waste to Support a Decarbonized Society," Japan Organics Recycling Association (JORA) selected the soil biodegradable tree shelter, which Sumitomo Forestry, Achilles, and GCJ, began developing and testing for two years starting 2020.

The newly developed soil biodegradable tree shelter is made primarily of 100% biodegradable resin that contains a plant-derived PLA (polylactic acid). Tests were conducted to compare the new biodegradable tree shelter with conventional polypropylene tree shelters in terms of the impact on the growth of planted trees, material strength and decomposition properties.

A cedar sapling enclosed in a shelter

Test results confirmed that the new material is equivalent to conventional products in terms of both strength and impact on the growth of the planted trees, and additionally, that it decomposes in soil.

■ Role of each company
- Sumitomo Forestry: Provided forests and wooden posts needed for the tests
- Achilles: Developed the material used in the soil biodegradable tree shelter
- GCJ: Manufactured the sheets and provided fixing devices

■ Effect
The new tree shelter biodegrades in soil, thereby contributing to the decarbonization of society and reducing the environmental impact of the forestry industry. In addition, it helps to lessen the burden on forestry workers involved in removal, collection, and disposal.

■ Future developments
SFC, Achilles, and GCJ plan to commercialize this product by March 2023 and are working to reduce costs so that all tree shelters in Japan will be made of plant-derived materials by fiscal 2030. The three companies will continue to promote initiatives that reduce the labor needed to protect forests against feeding damage with the aim to make the forestry industry more decarbonized and environmentally friendly.

The soil biodegradable tree shelter is scheduled to be exhibited on November 13th (Sunday) and November 14th (Monday) at the commemorative event for the 45th National Tree Planting Festival 2022 in Beppu City, Oita Prefecture (organizer: Oita Prefecture, Japan Forestry Mechanization Society).*
**Venue: RECAMP Beppu Shidaka Lake (4380-1 Shidaka, Beppu City, Oita Prefecture) and surrounding forests*

■ Policies of each company
Sumitomo Forestry Group is engaged in a broad range of businesses centered on wood, including forest management, timber and building material procurement and manufacturing, wooden building construction, and wood biomass power generation. By promoting the Sumitomo Forestry Wood Cycle, which involves harvesting, processing, utilizing, reusing, and planting trees, we are striving to increase the carbon absorption of forests and store carbon for long periods of time with the use of wood. As a partner in promoting a global shift towards decarbonization, Sumitomo Forestry Group seeks to promote its unique Wood Solution to contribute to the realization of a sustainable society.

Achilles Corporation, a comprehensive plastics processing manufacturer, provides a diverse range of products that support daily lives, industry, and the frontlines of construction and civil engineering, manufacturing and equipment, electrical and electronic products, vehicles, agriculture and livestock breeding, medicine and disaster prevention, and lifestyle and leisure. Harnessing our comprehensive strength and business presence in many different fields, we aim to provide unique products and services for comfortable living spaces that are friendly to people and the environment.

Green Chemistry Japan Co.,Ltd contributes to the improvement and maintenance of forests and other environments through its tree shelter business and other activities. While clear cutting has increased in Japan in recent years, there is a widening gap between harvested areas and areas needing reforestation due to costs associated with tree planting and nursery work and the shortage of workers for such tasks as weeding. GCJ provides tree shelters that are effective for low-density planting and that reduce weeding and prevent feeding damage so that reforestation can be carried out quickly, reliably, and continuously in harvested areas.